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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,486	12/19/2001	Alan W O'Neill	36-1673	7992

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EXAMINER

ALEXANDER, JESSE NELSON

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,486

Applicant(s)

O'NEILL ET AL.

Examiner

Jesse N Alexander

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The drawings are objected to because **fig. 1 does not include shading described in specification at page 5, lines 22-23**. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The abstract of the disclosure is objected to because **its length exceeds one paragraph and said paragraph includes legal phraseology**. Correction is required.

See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

4. Claim 1 is objected to because of the following informalities: claim 1 recites "said mobile node" in line 13 and "said mobile host " in line 14. Said phrase in line 14 should be replaced with the phrase "said mobile node". Appropriate correction is required.
5. Claim 15 is objected to because of the following informalities: punctuation error: there is a period followed by a comma on in line 3. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1 through 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Regarding claim 1, the phrase "may be" (line 6) renders the claim indefinite.
- Regarding claims 2 and 3, the phrase "does not apply" renders the claim indefinite.
- Claims 4, 5, 7 through 13, 20, 22 and 23 are rejected because they depend on rejected claim 1.
- Claim 6 is rejected because it depends on rejected claim 5.
- Claim 15 is rejected because it depends on rejected claim 13.
- Claims 16 through 19 are rejected because they depend on rejected claim 14.
- Claim 21 is rejected because it depends on claim rejected 20.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-5, 7, 12, 20, 21 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Acampora et al. (US 5,528,583A).

Regarding claim 1, Acampora et al. teaches a method of controlling routing of packets to a mobile node (**in figure 2**) in a an infrastructure of packet switching nodes links, said packet switching nodes including a packet switching network including

interconnected by packet transport plurality of fixed core nodes and a plurality of access nodes to which routing paths (**fig. 1, element 10**), defined by next-hop forwarding provided by packet switching nodes located along said routing paths, may be directed in said infrastructure for a given network address (**fig. 4, elements 75, 76, 77, 78 are packet switching nodes, routing paths are elements 85 and 86**), said next-hop forwarding being defined in response to routing defining processes in which routing protocol control messages are transmitted between packet switching nodes (**control messages in col. 8, 23-27**) and routing protocol data, specifying a characteristic of a route passing through an access node, is stored in said packet switching nodes, said method comprising (**routing protocol data is equivalent to content of routing tables shown in Fig. 4A and 4B. FIG. 3 shows storage in nodes (element 58)**):

altering said next-hop forwarding, for a first network address used by said mobile node (**col. 4, line 56-67 through col. 5., line 4**), in at least one of said packet switching nodes in response to mobility of said mobile host from a first access node to a second access node (**fig. 2, element 29**), to allow packets to be routed to said mobile host via said second access node (**fig. 2, element 34. 35**), by a routing defining process involving the transmission of routing control messages to a limited number of said packet switching nodes, such that after said routing defining process ends (**col. 8, lines 10-27**):

first routing protocol data for said first network address is held in a first set of packet switching nodes (**routing protocol data is the same as contents of routing tables know in the art, see fig. 4 tables A & B**), said first routing protocol data

specifying a characteristic of a first route passing through said first access node (**fig. 4. Element 78 is first access node, and Fig. 4A**); and

second routing protocol data for said first network address is held in a second set of packet switching nodes (**fig. 4. Element 75 and Fig. 4B**), different to said first set of packet switching nodes (**set 1 is element 75 and 76 (fig. 4) and set 2 is 75 and 77**), said second routing protocol data specifying a characteristic of a second route passing through said second access node (**fig. 4. Element 85 and Fig. 4B, the characteristics are port addresses.**).

Regarding claims 2, 3, Acampora et al. teaches a method, wherein said first route characteristic does not apply to said second route, and

a method wherein said second route characteristic does not apply to said first route. (**Fig 4, tables A and B disclose routes with different routing characteristics**)

Regarding claim 4, Acampora et al. teaches a method, comprising generating said first routing protocol data prior to mobility of said mobile node from said first access node to said second access node (**col. 4, 59 through 64, and Fig. 8**).

Regarding claim 5, Acampora et al. teaches a method wherein said second protocol data (**fig. 4A**) includes data indicating that said second protocol data results from mobility of said mobile node (**the change in state of the bits in the enable column in fig. 4A as described in col. 6, line 23 through 27**).

Regarding claim 7, Acampora et al. discloses a method comprising limiting the storage of said second protocol data substantially to packet switching nodes located in

the vicinity of a routing path between said second access node and said first access node. **(fig. 4B contains only the routing data to neighbors of element 75)**

Regarding claims 12, Acampora et al. discloses a method comprising routing packets destined for said first network address **(of mobile node)** via at least one of said first set of packet switching nodes **(Fig. 4, element 85 via elements 75 and 76)** and at least one of said second set of packet switching nodes **(the ability to route through Fig. 4, elements 75 and 77 to a mobile at an access node connected to element 77 would be inherently necessary to support the handoff/handover of mobile)**.

Regarding claims 20 and 21, Acampora et al. discloses a method wherein said mobile host, or mobile node is connectable to an access node via a wireless link, said mobility involving handover of the mobile node at the wireless link layer. **(Fig. 2, element 29: wireless link shown, hand-off or handover: col. 4, line 65 through col. 5, line 4.)**

Furthermore, it is well understood in the art that mobile nodes and mobile hosts refer to the same entity.

Regarding claim 23. Acampora et al. discloses a method wherein said routing protocol is a link reversal routing protocol **(col. 7, lines 20 through 24)**.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 8, 9, 14, 16, 19, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acampora et al. (US 5,528,583A).

Regarding claim 8, Acampora et al. teaches the use of control messages to update routing tables by enabling and disabling rows within said routing table in col. 8, line 38 through 41.

Acampora et al. fails to explicitly teach a method comprising generating said second routing protocol data in response to a routing protocol control message injected from the second access node.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the routing protocol control messages of the Acampora et al. method such that second routing protocol data tables would have been generated in response to a routing protocol control message.

The motivation for said modification would have been to support routing practices well known in the art that use inter-router protocols that involving messages that update of entries in said routing tables.

Regarding claim 9, Acampora et al. teaches look up tables (fig. 4 A & B) within packet switching nodes (elements 75, 76, 77) with entries that correspond to lists of ports to neighboring nodes.

Acampora et al. fails to explicitly teach a method wherein said routing protocol data relates to a number of hops along a route to said mobile node and passing through an access node.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the routing tables of the Acampora et al. method such that they comprise data relating to a number of hops along a route to said mobile node and passing through an access node.

The motivation for said modification would have been to determine the best port for the next-hop traffic.

Regarding claims 14, and 19, Acampora et al. discloses a method comprising simultaneously holding said first and second (**fig. 4 and 6**) routing protocol data for said first network address (**connection ID column in fig. 6 A & B**).

Acampora et al. further discloses a packet switched network comprising a plurality of switching nodes each capable to route packets destined for said first network address, and each with it's own protocol data or look up table (**as shown in fig. 1, elements 5 through 9 and described in col. 4, line 9 through 12.**),

Acampora et al. further teaches a method for a packet switched network with a plurality of access nodes in **figure 1, element 17**.

Acampora et al. fails to explicitly teach a method:

- comprising simultaneously holding said third routing protocol data for said first network address wherein said third routing protocol data includes data which relates to said third access node and does not relate to said first and second access nodes.
- wherein said third routing protocol data relating to a third access node via which packets are currently to be transmitted to said mobile node using

said first network address, in a third set, different to said first and second sets, of said packet switching nodes.

- routing packets destined for said first network address via at least one of said first set of packet switching nodes, at least one of said second set of packet switching nodes, and at least one of said third set of packet switching nodes.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Acampora et al. invention to comprise a third packet switching node, in addition to those shown on **fig. 6**, capable to simultaneously hold a third routing protocol data for said first network address different from said first set (consisting of **elements 75 and 76**) and second set (**elements 75 and 77**) as is show in the tables in **fig. 6 A and B**.

The motivation for said modification would have been to support handoffs or handovers of the mobile (**element 29**) to other base stations (or access nodes) (connected to **element 77**, for example) in addition to the two shown by Acampora et al. in **fig. 4 and 6**.

Regarding claim 16, Acampora et al. teaches the concept in **tables 4A and 6A** of a packet switching node (**elements 78 and 79 in fig. 4**, or **100 and 110 in fig. 6**) containing routing protocol data related to the access nodes connected to said packet switching node.

Acampora et al. fails to explicitly teach a method wherein said third protocol data includes data which relates to said third access node and does not relate to said first and second access nodes.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Acampora et al. invention such that a third routing protocol data table would include data which relates to said third access node and does not relate to said first and second access nodes.

The motivation for said modification would have been to minimize the number of entries required in said routing tables, and thereby increase the speed of table accesses or look-ups.

Regarding claim 22, Acampora et al. teaches a method wherein said network address is an Asynchronous Transfer Mode (ATM) virtual channel identifier (VCI).

Acampora et al. fails to explicitly teach a method wherein said network address is an Internet Protocol (IP) address.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to change protocol of the Acampora et al. method to Internet Protocol (IP).

The motivation for said change would have been to support operation on IP networks because they are more prevalent and cost effective than ATM networks, as well as to leverage the advantage that packets from many different callers may simultaneously share the same communication media as Acampora et al. describes in col. 2, lines 12 through 15.

Regarding claim 24, Acampora et al. teaches look up or routing tables in figure 4, element 91 stored in memory that contain both next hop forwarding and routing protocol data in the same memory.

Acampora et al. fails to explicitly teach a method wherein said routing protocol data is held separately from next hop forwarding tables in said packet switching nodes.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of storing data of the Acampora et al. look up tables such that said data could be held in separate memory areas.

The motivation for said modification would have been to increase the speed of the monitor/comparator interface with said look up table, as shown by Acampora et al. in fig. 3, element, by placing critical parts of said look up table in high speed memory or cache.

Allowable Subject Matter

12. Claims 6, 10, 11, 13, 15, 17 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

13. The following is an examiner's statement of reasons for allowance: The aforementioned claims are allowable over prior art of record since the cited references taken individually or in combination fails to particularly disclose a method wherein said mobility-indicating data indicates a sequence of mobility from said first access node to said second access node.

14. It is noted that the closest prior art Acampora et al. teaches that the change in state of the bits in the enable column in fig. 4A (described in col. 6, line 23 through 27) would indirectly indicate the mobility of the mobile node or host.

However Acampora et al. fails to explicitly teach or render obvious the above underlined limitations as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- 5,117,422 A Hauptschein et al.
- 5,384,826 A Amitay, Noach
- 5,375,140 Bustamante et al.
- 5,623,534 Desai et al.
- 6,081,524 Chase et al.
- 6,473,411 Kumaki et al.
- EP 862344 A2 Stanhope et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jesse N Alexander whose telephone number is (703) 305-8709. The examiner can normally be reached on 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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RICKY NGO
PRIMARY EXAMINER